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MOVING DISTRICT REFORM INTO SCHOOLS: LINKS BETWEEN TEACHERS' PERCEPTIONS OF DISTRICT-WIDE REFORM EFFORTS, PARTICIPATION IN PROFESSIONAL ACTIVITIES, AND STUDENT ACHIEVEMENT

A nationwide call for accountability in education sprang from the publication of *A Nation at Risk* (National Commission on Excellence, 1983). The resulting move to high-stakes, statewide tests has sent educators scrambling for a recipe for reform that will raise student achievement.

Unfortunately, the most recent National Assessment of Educational Progress (NAEP) reading scores in the critical elementary school years have remained flat (Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001). Similarly, in science and mathematics, American schools are also not meeting their goals based on a review of test scores on multiple assessments such as NAEP and the Third International Mathematics and Science Study (Schmidt, 2002).

Currently, the pressure to reform schools has grown even stronger. George W. Bush's No Child Left Behind Act (NCLB) requires that all states test all kindergarten through eighth-grade students yearly in mathematics and reading and that states provide sanctions for schools that do not improve. These sanctions include the prospect of mandated school choice and could eventually close some failing schools (No Child Left Behind, 2002).

Schools in urban districts may have more difficulty meeting the requirements of NCLB than schools in suburban districts have. NCLB mandates that states set goals for school improvement based on current averages on state tests and then increase these goals over time (No Child Left Behind, 2002). Urban schools, which typically score below average on state tests, have more ground to make up in order to meet state goals. Additionally, these schools will be forced to make immediate progress, while higher performing schools may be above state goals for many years regardless of whether or not they make efforts to improve (Linn, 2003). As a result, urban schools are likely to need immediate reform in order to meet state goals.

Through "effective school" research beginning with Edmonds (1979), school administrators have gained a great deal of information about what types of reforms are effective in raising achievement and have learned that teachers are crucial to implementing change (e.g., Bath et al., 1999; Borman et al., 2000; Carter, 2000; Cotton, 1995; Dolejs & Jenkins, 2001; Elmore & Burney, 1997; Miller-Whitehead, 2001; Trimble, 2002; Wagstaff, Melton, Lawless, & Combs, 1998). This body of research has been seen as a direct contradiction to earlier research such as Coleman et al. (1966), which postulated that children in poverty would never be able to compete with wealthier peers (Teddlie & Reynolds, 2000). However, despite much evidence that schools can be



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effective for children in impoverished areas, little is known about how to change ineffective schools into effective schools. Although districts use professional development, principal leadership, and teacher leadership to help leverage reform, these efforts have varied from district to district and school to school.

For instance, over the past four years in Ohio, the Cleveland Municipal School District (CMSD), a Title 1 district, has launched a series of reform initiatives aimed at improving school effectiveness, particularly targeting elementary schools. However, as in many urban school districts serving children placed at risk, acceptance and ownership of reform efforts by teachers cannot be taken for granted. In addition, the extent to which these efforts lead to measurable improvement in student outcomes may be questionable.

Nationwide, accountability is often measured by students' standardized test scores. In Ohio, the state report card is based primarily on the percentage of students passing state proficiency tests in the fourth, sixth, and ninth grades. In 1997 when testing legislation first went into effect in Ohio, fourth graders who did not pass the fourth-grade reading test were slated to repeat fourth grade starting in 2001. Although the law was revised before the mandatory retention rule went into effect, the legislation resulted in many districts placing great emphasis on elementary-school reform, focused particularly on the Ohio Fourth-grade Proficiency Test.

The state report card system also originally classified only districts, not individual schools, into four categories: effective, continuous improvement, academic watch, and academic emergency. Urban districts in particular fared poorly on the report card. Now, with the revised state report card system, Ohio will also rate individual school buildings using this method and, thus, districts are more likely to hold principals and teachers accountable based on student passage rates. In order to meet the requirements of NCLB the state will also place special emphasis on reading and math tests in elementary school.

Reform Efforts in Cleveland Municipal School District

In 1998, when CMSD was placed under the control of the city government, the mayor-appointed C.E.O. for this large urban school district faced significant challenges. For instance, according to data from the district's Office of Research and Evaluation (1998), the poverty rate was high. Approximately 64% of students received free or reduced-price lunch, an indicator of poverty, and 73% of students came from single-parent homes. The mobility rate was also high. About 16% of students had changed schools at least once during the year. These and many other school and community characteristics presented a major challenge to the district's administration, since such vari-



ables have been associated with low academic achievement (Burns, Lippman, & McArthur, 2001). Indeed in 1998, the district did not pass any of the state's 18 standards for academic achievement (Ohio Department of Education, 1999).

To meet these challenges, the district's central administration introduced a collection of district-wide reforms primarily targeting elementary schools. These reforms are now included in its vision statement and updated in its annual reports. Though not part of the official movement, many of this urban district's reforms are consistent with those of the "effective schools" movement, as presented in a recent update (Taylor, 2001). Reform initiatives implemented by the district include: Implementing academic standards, involving parents, engaging in meaningful professional development, providing a safe and orderly environment, emphasizing basic skills, involving the community, increasing student literacy, working from a clear and focused mission, having high expectations for all students, monitoring student progress frequently, using data-based decision-making, maximizing student time on task, involving teachers in decision-making, and providing instructional leadership for teachers. However, in the CMSD, passage rates for the state proficiency test scores have varied radically, from schools that have made little or no improvement since 1998 to schools that have increased their passage rates to exceed state averages.

Teachers' perceptions of reforms also vary, from those who say their schools have made no progress in implementing reforms to those who say their schools are getting much better. Teacher perception of elements of effective schools has been shown to correlate with student academic achievement (Blust, 1986; Charlton, 1989; Sabatella, 1992; Wilson, Firestone, & Herriott, 1985). Studies have also demonstrated the important role teachers play in raising student achievement (Sanders, 1998; Sanders & Horn, 1998). In some schools, particularly in urban communities, variation in teacher perception of school reform and in fluctuation in test scores may suggest that centralized reform efforts have been ineffectively disseminated to teachers, making implementation of these reforms difficult. It is therefore of paramount importance that teachers should not only play a leading role in any school reform effort but also take ownership of these efforts. In a study of three large, urban districts, Corcoran, Fuhrman, and Belcher (2001) suggested that large districts have particular difficulty working district-wide reforms into the fabric of daily classroom life.

Several recent studies point to the use of instructional leadership—in the form of professional development workshops, principal supervision, and/or participation in inter and intra-school school teams—to put reforms into practice in high-poverty and/or high-minority schools (Borman et al., 2000; Carter, 2000; Dolejs & Jenkins, 2001; Miller-Whitehead, 2001; Trimble, 2002).



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Such strategies could be critical in large, urban districts (Elmore & Burney, 1997). However, these studies do not always specifically address teachers' perceptions of reform efforts and do not specifically relate these perceptions to student test score gains over time.

Purpose of the Study

This study attempts to relate variations in school passage rates on the Ohio Fourth-grade Proficiency Test between 1999 and 2002 to the extent to which teachers are incorporated into the district reform efforts. Participation in professional development and collaboration with educational leaders, such as principals and lead teachers, have been two major strategies to incorporate teachers into the district reform efforts. The degree to which these practices have been effective has varied from school to school.

The primary purpose of the study is twofold. First, it examines the connection between teachers' participation in professional collaboration activities and in professional development and their perception of the effectiveness of the district reform efforts. Second, it aims to determine the extent to which teachers' assessment of the effectiveness of school reform efforts can lead to school improvement in the passage rates on the state standardized tests. In particular, the study addresses the following specific research questions:

1. To what extent do teachers' participation in professional development activities and engagement in professional collaboration predict the perceived success of their schools' reform efforts?
2. To what extent does the success of the school's reform efforts as perceived by teachers predict the school's improvement on math and reading passage rates for the Ohio Fourth-grade Proficiency Test between 1999 and 2002?

Methodology

Subjects

A total of 620 teachers from 82 elementary schools in the CMSD participated in this study. These respondents represented 20.9 % of the 2960 who were contacted to participate in the study. Though the sample respondents do not constitute a random sample of elementary school teachers from the district, there is indication that they were a fair representation of the teachers in the district, particularly in terms of gender and ethnicity (see Table 1). All grade levels and subjects were represented. Respondents' mean years ex-

perience was 4.0 on a five point scale in which 1=less than 1 year, 2=1-3 years, 3=4-9 years 4=10-19 years, 5=20 or more years. The mean years of experience in the CMSD was 10.2 years, according to state records (Ohio Department of Education, 2002).

Table 1

Participants in the Study Compared to All Teachers in the District by Gender and Race

Characteristics of participants		Sample participants		Population in district	
		Number	Percent	Number	Percent
Gender	Female	554	89.4	2396	87.7
	Male	49	7.9	337	12.3
	Unidentified	17	2.7	n/a	n/a
Race	Asian	8	1.3	15	.5
	Black	99	16.0	674	24.7
	Latino	10	1.6	78	3.0
	White	450	72.6	1962	71.8
	Other	13	2.1	n/a	n/a
	Unidentified	40	6.5	n/a	n/a

Instrument

The survey instrument used in the study sought teacher responses in three areas. First respondents were asked to indicate the number of times per year they participated in specific professional collaboration activities using the scale: (1) zero times per year, (2) one to four times per year, (3) five to nine times per year, (4) monthly, (5) weekly, or (6) daily. Professional collaboration activities included meeting with teachers to plan and share, team teaching, being evaluated by a principal, being observed by a principal, attending a teacher-led workshop, consulting with a teacher leader, and getting materials from a teacher leader.



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Second, teachers were asked to rate how well their school was implementing district reforms. The areas of reform used in this case were similar to those constituting qualities of effective schools. Responses in this area used a four-point scale: (1) getting worse, (2) always bad, (3) getting better, and (4) always good.

Finally, teachers were asked to indicate how much professional development they had received on particular reform-related areas using the scale: (1) none, (2) not enough, or (3) just enough. Professional development topics included: academic standards, data-based decision-making, classroom management, parent and community involvement, safety, literacy, and social services for students. The survey also collected teachers' basic demographic characteristics such as gender, ethnicity, years of experience, grade level(s) taught, subject matter taught, and name of school.

All survey items were developed based on the stated policies and reported activities of the district and based on the literature on school effectiveness. In order to further refine the instrument, five teachers in the district reviewed the survey and helped revise it for clarity. After data were collected, the internal consistency measure of reliability was established using the Cronbach Alpha. Professional collaboration, which consisted of six items, had an alpha of 0.67. Ratings of district reform efforts, which consisted of 15 items, had an alpha of 0.93. Professional development, which consisted of 7 items, had an alpha of 0.82.

Data Collection Procedure

A total of 2960 surveys were sent to elementary school teachers' home mailing addresses in March, April, and again in June of 2002. In late April, 247 surveys were also hand-delivered to teachers by community or teacher volunteers. In mid June through July, 350 phone calls were made to teachers encouraging them to return the surveys. These calls targeted schools that had low return rates. In mid June, the survey was also posted on a web site; however, only two elementary-school teachers responded via e-mail. A total of 620 (approximately 20.9%) responded.

School building passage rates in the Ohio Fourth-grade Proficiency Tests for the years 1999 through 2002 were obtained from the Ohio Department of Education (ODE). The state reports the percentage of students passing state tests each year. The year 1999 was chosen as an initial point since the management of CMSD was transferred from the elected school board to the city mayor in the fall of 1998.



Data Analysis

Data from the study were analyzed in two phases. In phase one, descriptive statistics in the form of means and standard deviations were used to summarize teachers' perceptions in the three areas: success of district reform efforts in their school, level of participation in professional collaboration, and amount of participation in professional development. A multiple linear regression model was used to determine the extent to which participation in professional development activities and engagement in professional collaboration could predict teachers' perceptions of the success of district reform efforts in their building. All three variables in this model were continuous and represented teacher-level information. The two independent variables were "professional collaboration," which was aggregated from six items (alpha of 0.67), and "professional development," which was aggregated from seven items (alpha of 0.82). The dependent variable "ratings of district reform efforts" was aggregated from 15 items (alpha of 0.93).

In phase two, an individual growth model (Raudenbush & Bryk, 2002; Rogosa, Brandt, & Zimowski, 1982; Rogosa & Willett, 1983, 1985) was used to determine the extent to which teachers' perceptions of school reform could predict the rate of improvement in the school passage rate on the Ohio Fourth-grade Proficiency Test between 1999 and 2002. Success on the Ohio Fourth-grade Proficiency is reported at the school level. Therefore, in order to obtain an overall measure of teachers' perceptions of reforms, individual teachers' ratings of the implementation of reforms were aggregated at the school level and used as the independent variable predicting growth in the school passage rate on the Ohio Fourth-grade Proficiency. The number of teachers representing each school ranged from 2 to 20, with an average of eight teachers per school and a standard deviation of 3.9. The resulting continuous variable had a mean of 3.0 and a standard deviation of 0.35. Due to changing criteria for passing reading and math tests from year to year, passage rates for each of the four years were transformed into standard scores. An individual growth model (Raudenbush & Bryk, 2002) was used to assess the extent to which the perceived success of a school's reform efforts could predict that school's rate of improvement in mathematics and reading passage rates between 1999 and 2002.

Model Specifications

The within-school models for both math and reading provided the growth trajectory for each school for passage rates between 1999 and 2002.



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This model is given by the equation

$$Y_{it} = \pi_{0i} + \pi_{1i}a_{it} + e_{it}$$

in which Y_{it} is the standard score passage rate for school i at time t , π_{0i} is the initial status of school i , and π_{1i} is the rate of improvement in standard deviations per year. At level-2, the impact of school reform efforts on the initial status of schools (π_{0i}) and on the rate of improvement in school passage rate (π_{1i}) is assessed using the linear equations,

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{REFORM}_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{REFORM}_i) + r_{1i}$$

where, β_{00} is the predicted initial status for a school whose reform effort was rated as zero (y-intercept), β_{01} gives the strength of the reform efforts on the initial status of the school, β_{10} is the predicted rate of improvement in passage rate per year for a school whose reform effort was rated as zero (y-intercept), and β_{11} is the impact of reform efforts on the rate of improvement (acceleration parameter).

Findings

Phase One

In phase one of the analysis, teachers' individual ratings of reform and professional activities were examined. Teachers' perceptions of reform efforts, of engagement in professional collaboration, and of participation in professional development activities were summarized using means and standard deviations. These summary statistics are presented in Table 2. The mean teacher rating for "district reform efforts" was 3.0, indicating that on average teachers viewed their schools as getting better. The mean teacher rating for "engaging in professional collaboration" was 2.9 indicating that on average teachers collaborated about five to nine times per year. The mean teacher rating for "professional development" was 2.2, indicating that on average teachers felt they had not had enough professional development. The standard deviations for these three variables ranged from 0.5 to 0.8, indicating that teachers' answers varied only slightly.

A linear multiple regression was used to examine the extent to which teachers' perceptions of their school's reform efforts can be predicted by participation in professional development activities and engagement in professional collaboration. The results revealed that teachers' perceptions of school

reform efforts were positively predicted by their engagement in professional collaboration ($\beta = 0.329$, $p < 0.001$) and their participation in professional development activities ($\beta = 0.358$, $p < 0.001$). The predictors combined accounted for approximately 30.8% of variance in their perception of the success of school reform efforts.

Table 2

Means and Standard Deviations of Teacher Perceptions of Reform and Professional Activities

Teacher perceptions of ...	Mean	SD
... district reform efforts (1=getting worse, 2=always bad, 3=getting better, 4=always good)	3.00	.60
... engagement in professional collaboration (1=none, 2=two to four times per year, 3=five to nine times per year, 4=monthly, 5=weekly, 6=daily)	2.90	.79
... participation in professional development activities (1=none, 2=not enough, 3=just enough)	2.16	.52

Phase Two

In phase two based on the individual growth model, the predicted overall initial passage rate in 1999 was 36.32% for reading and 35.40% for mathematics. On average, schools improved in passage rate by 0.02904 standard deviations or 0.49 percentage points per year in reading and by 0.03091 standard deviations or 0.62 percentage points per year in mathematics. This rate of growth falls far short of meeting the demands of NCLB, which requires schools and districts to achieve 100% passage rates by 2014 (No Child Left Behind, 2002). However, teachers' perceptions of the success of district reform efforts in their school building had a statistically significant positive impact in predicting the rate of improvement in school passage rates between 1999 and 2002 in both reading ($\beta = 0.29$, $p < 0.01$) and mathematics ($\beta = 0.36$, $p < 0.01$). On the survey's four point scale, every one point increase in

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teachers' averaged perceptions of the success of reform effort is predicted to result in a 4.87 percentage points increase in their school's passage rate in reading and a 7.17 percentage point increase in its passage rate in mathematics. The initial status of a school's passage rate in reading and math was not significantly predicted by the teachers' perceptions of the success of reform efforts in schools (see Table 3).

Table 3

Individual Growth Model Results for the Prediction of Improvement in School Passage Rate on the Ohio Fourth-Grade Proficiency Test Between 1999 and 2002 by School Reform Efforts

School reform efforts	Indicators of school passage rates			
	Initial status (π_0)		Rate of change (π_1)	
	Coefficient	P-value	Coefficient	P-value
Math reform	0.3482	0.304	0.3569	0.000
Reading reform	0.4389	0.207	0.2891	0.002

In order to illustrate graphically the impact of school district reform efforts, as perceived by teachers, on the rate of school improvement in the passage rate on the Ohio Fourth-grade Proficiency Test, schools were classified as reformers and non-reformers. Reformer schools were those whose average teacher rating of how well their school was implementing reforms was above 3.0. Those schools with an average rating of no more than 3.0 were classified as non-reformers. Figures 1 and 2 present the predicted linear trajectories for reformer and non-reformer schools between 1999 and 2002 for mathematics and reading respectively.

As illustrated in the two figures, though both reformer and non-reformer schools started near the same point in 1999, reformer schools have experienced gradual improvement in passage rates in both mathematics and reading while non-reformers have experienced a slight decline between 1999 and 2002. Initially in mathematics, the gap in passage rate was 5.6 percentage points; four years later the gap had increased to 20.2 percentage points. Similarly in reading, the gap had increased from 4.6 percentage points in 1999 to 15.8 in 2002.

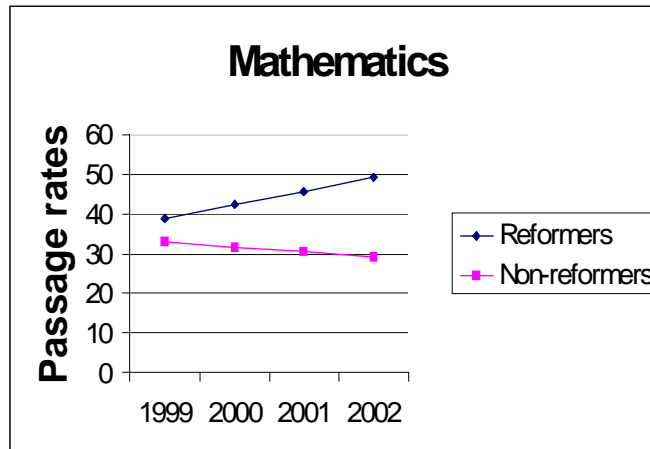


Figure 1: Average predicted linear growth trajectory in mathematics passage rates for reformer and non-reformer schools, 1999-2002.

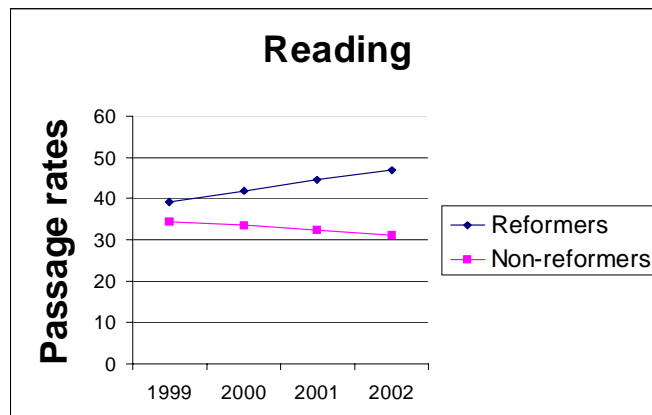


Figure 2: Average predicted linear growth trajectory in reading passage rates for reformer and non-reformer schools, 1999-2002.



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Conclusion and Discussion

Findings show that teachers' perceptions of the success of reform significantly predict improvement in student passage rates in both mathematics and reading tests. When teachers reported more successful school-wide implementation of reform efforts, passage rates accelerated. When teachers reported less successful school-wide implementation of reform efforts, passage rates declined slightly. Thus, how well reforms are embraced and implemented by school staff appears to have a significant impact on student academic success. Working well-researched reform initiatives into school culture is likely to increase test scores based on this analysis of the CMSD.

The study also provides information on how districts can work reforms into school culture. Findings indicated that adequate professional development specifically focused on reforms and more frequent professional collaboration with principals and other teachers are positively related to increasing teachers' ratings of the success of reform efforts in their school buildings. However, as in many urban districts, not all schools structure their time around these professional activities. Indeed on average, teachers in this study reported that they did not get enough professional development and that they collaborated with other staff less than once a month. Increasing targeted professional development and professional collaboration at schools in this district, and perhaps at schools in many urban settings, is promising and could increase reform efforts, which will ultimately improve students' learning.

Certainly, much could be gained by schools and students in terms of academic achievement if professional activities were increased. However, even if the increases in passage rates predicted by this study continued in future years, a typical "reformer" school in this study would probably not meet the goals of NCLB. By 2014, NCLB demands that, in all schools, 100% of all general education kindergarten through eighth-graders pass state achievement tests in math and reading, as well as 100% of all kindergarten through eighth-grade students in all racial/ethnic groups, in special education, and in English language learners classes (No Child Left Behind, 2002). By 2014 in a typical "reformer" school in this study, 91.2% of students would be predicted to pass the math portion of the state test while 75.11% would be predicted to pass the reading portion.

Still, because this study shows that four years of concerted reform efforts in schools with high levels of professional development and collaboration correspond with increases in passage rates, the findings could reasonably be used to argue that reforms can work in urban schools given enough professional development and teacher collaboration. Educators could reasonably advocate increasing these activities in schools where reforms have not caught



on. However, critics might counter that even these efforts are not likely to ensure that all schools meet the stringent goals of NCLB. A recent examination of NCLB by the National Center for Research on Evaluation, Standards, and Student Testing concludes that NCLB requirements, particularly for lower performing schools in urban areas, may be impossible to meet (Linn, 2003). Given this projected difficulty, it is not surprising that even CMSD's most promising schools are not predicted to reach NCLB goals. Therefore, perhaps a compromise position is necessary. Because professional development and collaboration are likely to increase teachers' perceptions of the effectiveness of school reform efforts and, in turn, increase student passage rates on tests, these reform efforts should be continued and expanded. However, new solutions for increasing student achievement must also continue in the CMSD, as well as in other urban schools where similarly low student achievement threatens to keep schools from meeting the goals of NCLB and, more importantly, shows a failure to provide adequate education for students.

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